

EXHIBIT 5

First Mason Declaration

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UNITED STATES DISTRICT COURT
DISTRICT OF NEVADA

LAS VEGAS SKYDIVING ADVENTURES
LLC, a Nevada limited-liability company,

Plaintiff,

v.

GROUPON, INC., a Delaware corporation,

Defendant.

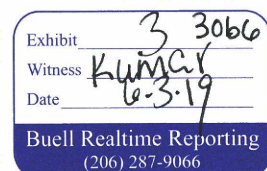
Case No.: 2:18-cv-02342-APG-VCF

**DECLARATION OF W. ANTHONY
MASON**

W. Anthony Mason states, under penalties of perjury of the State of Nevada and the United States of America, that the following is true:

1. I am over eighteen years old and, if called upon to testify regarding the matters set forth in this Declaration, I would be competent to do so.

2. I received my undergraduate degree in 1987 from the University of Chicago in mathematics with a computer science concentration. From 1987 through 1989, I was a research staff member at Stanford University, where my research primarily revolved around operating systems, including developing kernel-mode debuggers and device drivers and network protocol drivers for various operating systems. From 1989 through 1993 I worked for Transarc Corporation, where I was part of a team that designed and developed distributed file systems.



1 From 1993 through 1994 I worked at FORE Systems, Inc., where I was responsible for creating
2 and managing an engineering team responsible for developing software for supporting network
3 communications devices.

4 3. From 1994 through 2016 I was a Consulting Partner for OSR Open Systems
5 Resources, Inc. In that role I developed a broad range of commercial technological solutions for
6 clients related to data management, storage, networks, debugging, security, and forensic analysis.
7 I provided technical seminars for software developers related to data management, storage,
8 operating systems, networks, debugging, and security.

9 4. From 2015 to present I have been employed by the Georgia Institute of
10 Technology, assisting in the delivery of courses teaching operating systems, computer networks,
11 and educational technology.

12 5. From 2016 to present I have been independently consulting in the technology
13 field, with a focus on security, distributed systems, forensic analysis, debugging, networking,
14 consensus protocols, data organization systems, and operating systems.

15 6. I received my Master of Science in Computer Science degree from the Georgia
16 Institute of Technology in 2017.

17 7. I am the co-author of Windows NT Device Driver Development (with Peter G.
18 Viscarola) (1998) and lex & yacc (with Doug Brown and John Levine) (1st ed. 1990) & (2d ed.
19 1992). I am also the author or co-author of over fifty articles relating to computer systems
20 architecture and am the named inventor of eleven patents in the field.

21 8. I am currently a member of the Association for Computing Machinery, the
22 Institute of Electrical and Electronics Engineers, and the USENIX Association.

23 9. For purposes of this Declaration, I have adopted the following meanings for the
24 following terms based upon my experience and understanding:

- 25 a. **Domain Name** – a textual name used to find and identify services on the
26 Internet. For example, **google.com** is the most frequently accessed domain
27 name.
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- 1 b. **Domain Name Service** – an Internet service consisting of multiple
2 cooperating computer systems that coordinate the conversion of a Domain
3 Name to an Internet Address. This conversion is based upon information
4 from domain owners and Domain Registrars under the management of
5 ICANN.
- 6 c. **Domain Registrar** – an entity responsible for managing the unique
7 assignment of a domain name to a given owner.
- 8 d. **HTML** – the Hyper Text Markup Language. It is a standardized way of
9 creating web pages and includes information that is used to provide context
10 about the web page’s intended purpose, content that may be displayed, and
11 other information useful to implementing web page functionality.
- 12 e. **HTTP** – the Hyper Text Transport Protocol and it defines how information, in
13 the form of electronic messages, is exchanged between a Web Server and a
14 Web Client.
- 15 f. **HTTPS** – the secure HTTP protocol. It uses SSL/TLS to ensure that the Web
16 Server presenting HTTP content to a Web Client is authenticated, as well as
17 ensure that the data being exchanged is encrypted between the Web Server
18 and the Web Client.
- 19 g. **ICANN** – the not-for-profit public corporation responsible for coordinating
20 management of the Internet’s unique identifiers, including Domain Names,
21 and Internet Addresses.
- 22 h. **Internet Protocol Address** – a numerical label assigned to each device
23 connected to a computer network using the Internet Protocol for
24 communications. An Internet Protocol Address (IP Address) identifies a
25 network endpoint and a location.
- 26 i. **Link Management Platform** – a service that, when presented with a URL
27 redirects the client to a second URL. This mechanism is often used to create
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1 short URLs and enable the tracking of specific URL usage. One such provider
2 is Bitly (bitly.com). Their service is used to "... shorten, share, manage and
3 analyze your links."

- 4 j. **SSL/TLS** – a set of security protocols that provide privacy and data integrity
5 between two or more communicating computer programs.
- 6 k. **URL** – Uniform Resource Locator, commonly referred to as the address of a
7 web page. It indicates the protocol used (e.g., HTTP or HTTPS), the Domain
8 Name of the server (e.g., www.groupon.com), and other information useful to
9 the Web Server and Web Client to provide relevant content. For example, the
10 question mark (?) in a URL indicates that the information after the question
11 mark are parameters that the Web Server may use in generating the page.
12 Parameters are commonly used for dynamic page generation.
- 13 l. **Web Client** – a specialized program that converts a URL to a request to
14 specific Web server and then interprets the Web Server's response. The Web
15 Client may receive different types of responses, including redirections to a
16 new URL, as well as HTML data. In the case of HTML data the Web Client
17 may convert the web page into a usable format, which may include textual or
18 graphical representations of the HTML data. Examples of Web Clients that
19 generate graphical representations include, but are not limited to, Chrome,
20 Firefox, Safari, Internet Explorer, Opera, and Edge.
- 21 m. **Web Server** – a specialized program that communicates with a Web Client to
22 transfer HTML content on demand to Web Clients based upon the URL
23 provided to the Web Server. Web Servers may reply with a variety of
24 different types of response. Web Servers may respond by providing HTML
25 data. The HTML data provide by a Web Server may be generated by
26 transferring pre-defined HTML data (static HTML), or by dynamically
27 generating HTML data (dynamic HTML), or a combination of static and
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dynamic content. Dynamic HTML content may be generated based upon specific characteristics of the URL to provide static content – that is pre-defined HTML documents which are persistently stored, or it may construct dynamic content – that is it generates web pages based upon specific characteristics of requests. Dynamic content may exist in a number of locations, including computer memory and persistent storage.

10. In forming my opinion, I have relied upon publicly available information about Groupon and their service infrastructure, literature in the field of internet protocols, including HTTP, HTTPS, SSL/TLS, and HTML, publicly available information on the Facebook website, publicly available information regarding domain registration, as well as my own experience and expertise in analyzing systems, including distributed systems and network protocols.

11. On May 27, 2019 I used standard Internet tools (from ICANN) to verify that the “pn” top-level domain is administered by the Pitcairn Island Administration.

12. On May 27, 2019 I used standard Internet tools (whois) to verify that the “gr.pn” Domain Name is registered to Groupon, Inc.

13. On May 27, 2019 I used a standard tool (nslookup) to map the name “gr.pn” to IP Addresses 67.199.248.13 and 67.199.248.12.

14. On May 27, 2019 I used standard Internet tools (whois) to determine that IP Addresses 67.199.248.13 and 67.199.248.12 are administratively assigned to “Bitly.com”.

15. Bitly.com is a commercial Link Management Platform. Customers of Bitly.com provide a URL to Bitly and receive a replacement URL, typically shorter. Bitly promotes this service to permit Customer’s to “brand your links”. Bitly offers commercial services to clients that support custom domain names, such as “gr.pn”, on its website.

16. Link Management Providers use a database to convert the short URL into the full URL.

17. On May 27, 2019 I used the Firefox Web Client with the URL gr.pn. I was forwarded to <https://www.groupon.com>.

18. Based upon these results it is reasonable to conclude that Groupon uses Bitly's Link Management Platform to provide URL Link Management services, which include storing information that maps shortened URLs to full URLs.

19. On May 27, 2019 I identified a link, posted on the Facebook.com website. That link is: https://gr.pn/2vGJo69?fbclid=IwAR0Jt4XaR1a4thGhE4PGQ_6Jj0wupv-ROtQxFZyr5i1MQnSZIGy_8NPNmhY (the "Facebook Groupon Link"). I note that there is a tracking parameter, denoted by the ?, and the label "fbclid", that is added by Facebook, is specific to Facebook and permits Facebook to track the Facebook Groupon Link. Omitting the Facebook link tracking data from the Facebook Groupon link yields: <https://gr.pn/2vGJo69> (the "Groupon Short Link"). The Groupon Short Link is used by Bitly, as a service to Groupon, to find a longer URL, described in the next paragraph, and to redirect the Web Client to that longer URL using the HTTPS protocol.

20. The Groupon Short Link is persistently mapped to the URL https://www.groupon.com/browse/las-vegas?lat=36.17&lng=-115.14&administrative_area=NV&locality=Las+Vegas&address=Vegas,+NV&query=skydive+Fyrosity&division=las-vegas&locale=en_US&linkId=55187837 (the "Fyrosity Groupon Long Link").

21. On May 28, 2019, I confirmed the Groupon Short Link is converted to the Fyrosity Groupon Long Link. It is reasonable to conclude that the mapping of the Groupon Short Link to the Fyrosity Groupon Long Link remains valid and is persistently maintained.

22. Given that gr.pn belongs to Groupon, Inc., it is reasonable to conclude this link was create by Groupon, Inc.

23. The Fyrosity Groupon Long Link includes the term "Fyrosity". It is reasonable to conclude that the term Fyrosity is stored inside the database owned and managed by Groupon and stored with Bitly.

24. When I accessed this link on May 28, 2019, I noted that the connection, as indicated by the https in the URL, is a secured and authenticated connection. I reviewed the

1 security certificate in my Firefox Web Client and verified that it was a properly signed security
2 certificate. Thus, it is reasonable to conclude this content is from a Web Server properly hosting
3 www.groupon.com.

4 25. The Fyrosity Groupon Long Link embeds geo-location information, which is
5 interpreted by Groupon, so that anyone using this link will see information regarding skydiving
6 offers relative to latitude 36.17, longitude 115.14, which corresponds to Las Vegas, Nevada.

7 26. It is normal industry practice for Web Servers to generate log files which indicate
8 the URLs that are processed by the Web Server.

9 27. It is normal industry practice to use information from Web Server log files to
10 generate analytic information providing insight into the usage of their website.

11 28. The Fyrosity Groupon Long Link includes a parameter labeled "linkId". It is
12 reasonable to conclude that this is a link tracking identifier created by Groupon, Inc. and is used
13 to evaluate the effectiveness of the link. It is reasonable to conclude that the information from
14 the Groupon Long Link and/or linkId is stored by Groupon, Inc. in at least one database and/or
15 log file generated by their Web Servers.

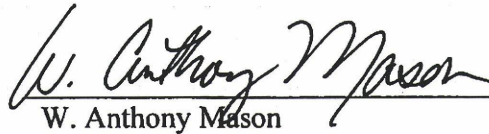
16 29. Based upon this information, it is my opinion that:

- 17 a. The Groupon Long Link was crafted by Groupon, Inc. as it encodes
18 information that is specific to the behavior of the Groupon site, embeds
19 location information that ties the results specifically to Las Vegas, NV,
20 regardless of the location of the Web Client presenting the link, incorporates
21 both the terms 'skydive' and "Fyrosity", and incorporates the link tracking
22 identifier. Further, the presence of the Groupon Long Link in the Groupon
23 database owned and managed by Groupon, Inc. and maintained by Bitly,
24 implies that use of the link was approved by Groupon, Inc. and subject to their
25 business controls for creating, publishing, and managing their links.
- 26 b. The Groupon Long Link benefits Groupon, Inc. and its customers, as the
27 Groupon Long Link, when presented to <https://www.groupon.com>,
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1 regenerates a page that contains current offers from Groupon for competitive
2 services to LAS VEGAS SKYDIVING ADVENTURES LLC.

- 3 c. The existence of the Facebook Groupon Link, the Groupon Short Link, and
4 the Groupon Long Link is at least as early as August 6, 2018, the date on
5 which the link was posted on the Facebook.com website, and at least through
6 May 28, 2019, the last date on which I evaluated the links. During that
7 period, the links, including the Groupon Long Link containing the term
8 Fyrosity, was present in media sources controlled by Groupon, Inc., including
9 databases, log files, and/or HTML documents.

10
11 Executed on this 28th day of May, 2019.

12
13 
14 W. Anthony Mason

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